

IN THE ABSTRACT

Please delete the abstract in its entirety and substitute the following:

--ABSTRACT OF THE DISCLOSURE

An encoded particle 8 includes a particle substrate 10; at least a portion of the substrate having at least one diffraction grating disposed therein, the grating having a resultant refractive index variation at a grating location, the grating being embedded within a substantially single material of the substrate; and the grating providing an output optical signal indicative of a code when illuminated by an incident light signal propagating in free space, the output optical signal being a result of passive, non-resonant scattering from the grating when illuminated by the incident light signal.--